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DISEASES AND MEDICAL PROBLEMS OF ETHIOPIA

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114 Ethiopia has attracted travelers from the earliest days of African exploration. Disease often played an important rôle in the success or failure of such travelers, and a considerable amount of information with regard to nosography may be gathered from their writings. As early as 1855 Meyer-Ahrens published a nosography of Ethiopia based on the information gleaned from travel books then available, and much of this information is still of considerable importance. Other early attempts at a nosography of this region, not covered by Meyer-Ahrens, may be mentioned: Courbon's (1861) thesis, which is very superficial, and Blanc's *Medical History of a Journey in Abyssinia* (1869). Blanc was attached as physician to the expedition sent to relieve a British Consul kept prisoner by King Theodore. Theodore had sent a letter to Queen Victoria and another to Napoleon III asking for an embassy. When both letters were ignored, all Europeans in Ethiopia were imprisoned in 1866. Blanc, although imprisoned for two years, had opportunity to act as physician to Theodore and other important Ethiopians and has given a very interesting, although under the circumstances quite naturally a somewhat prejudiced, account of diseases and customs among the Ethiopians.

175 In 1889 Menelik proclaimed himself Emperor of Ethiopia. The years that followed brought Ethiopia into bitter conflict with Italy. A treaty was signed between the two countries at Ucciali in 1889, and Menelik's cousin, Ras Makonnen, father of the present Emperor, was sent on a mission to Rome to obtain a loan for which the whole province of Harar was offered as security. Soon difficulties broke out again and in 1894 Menelik denounced the treaty of

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175 Ucciali. A wave of patriotism swept the country and armies were gathered to meet the Italian invasion. On March 1, the Italians were practically annihilated by a vastly superior Ethiopian Army.

177 Ethiopia had been put on the map. Menelik was interested in getting foreign help in a number of technical fields, and among the many technical experts traveling in the country during the next twenty years there were also a goodly number of physicians. The different diplomatic missions in the new capital, Addis Ababa, often had their own physicians and with Russian assistance the Emperor founded the first small hospital in the capital. Among the medical writers of this period were Chabaneix (1903), the well-known British medical historian, Charles Singer (1905), who traveled through southwestern Ethiopia to Addis Ababa in 1904, and the French Railway physician, Doreau (1909).

797 Mission societies sent medical missionaries to Ethiopia during the following years,
743 and French and Greek physicians, particularly, settled more and more in the capital and in Dire-Dawa, the French railroad town on the Addis-Ababa-Jibuti line. The French Government opened a hospital in Harar and the Italian Government at first kept a clinic in Addis Ababa which, in the early thirties, was enlarged to "The Italian Hospital." Ras Tafari, who had governed as a regent, with Menelik's widow, Zauditu, as Empress, was crowned Emperor in 1930, under the name Haile Selassie I. During his reign Ethiopia slowly has been emerging as a modern state. He early realized that the health of his people was of vital importance for the future of the country. In 1924, he founded the Beit Saida Hospital, which he entrusted to the Swed-

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797 ish surgeon, Kurt Hanner. In 1927, the American Presbyterian Mission opened a
743 100-bed hospital at Gullale on the outskirts of the capital. This hospital was staffed with American Mission doctors. In 1934 the "Zauditu Memorial Hospital" was founded by the Government. This hospital was run by the Seventh-Day Adventists chiefly as a maternity hospital. Helped by the American Society for Lepers, the Sudan Interior Mission and the Ethiopian Government, in 1934, founded a leprosarium at Akaki, near Addis Ababa. In
[874] 1935, the beginning of a school for "Medical Assistants" was set up in the Menelik Lycee, but this work was interrupted by the war. In the interior of Ethiopia medicine had also progressed. There were a number of mission hospitals, of which the most important were the Swedish Mission Hospital (Tafari Makonnen) in Harar and another Swedish Mission Hospital in Lekemti. The French Railroad had its own hospital in Diredawa.

744 Public health work was still very primitive. A public health committee, consisting of three physicians and a pharmacist, had been set up in Addis Ababa as the "Commission de l'Hygiène Publique." This com-

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744 mittee was presided over by the Minister of the Interior and a number of public health laws had been issued.

It will thus be seen that in the short period of his reign from 1930 to 1935, when the Italo-Ethiopian War broke out, Emperor Haile Selassie I had achieved considerable improvement in the medical situation. It has often been stated by Italian writers that Ethiopia had no medical facilities whatsoever. Comparisons are constantly being made with what Italy had to offer its citizens in the medical field, not with what was offered at this period to Africans in the surrounding countries.

During the Italo-Ethiopian War, medical services in Ethiopia were found totally inadequate to help the country in its defense. An appeal went out through the International Red Cross, and a large number of countries contributed Red Cross ambulances with medical staffs to Ethiopia. Foremost among these were Great Britain, Holland, Sweden and Norway. After the defeat of the Ethiopian forces, most of this foreign personnel had to leave and the Italians set up a new medical organization.

It is not necessary to discuss here in any detail the medical services in Ethiopia

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Typical huts for lepers at the Akaki Leprosarium near Addis Ababa.

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744 during the Italian occupation, 1936 to 1941. The first year of the "conquest" was considered "a period of orientation and preparation." Demobilization of the Italian military sanitary service was carried out, while the civilian organization had not as yet been completed.

743 In the whole of East Africa, the Italians had a medical staff of approximately 1,000 men. The provinces comprising Italian East Africa were: (1) Eritrea somewhat larger than before, (2) Somalia, (3) Shoa, (4) Harar, (5) Amara, and (6) Galla and Sidamo. The Italians had the problem of making the country safe for their own people. A large number of hospitals, dispensaries and mobile sanitary units were set up. The plan called for a large (at least 600 beds) regional hospital in each of the six regions. None of the regional hospitals in Ethiopia were finished, but some, like the one in the Galla Sidamo region (Jimma), were already partly in use at the time of the Italian defeat. The Italians have made much capital out of the "civilizing effort in the field of medicine." It is true that the figures for treatment of sick persons supplied by Italian medical authorities, indicate a great deal of interest in the native population. This interest must, however, be taken with a grain of salt on the basis of actual findings on the spot. For example, it is indicated almost constantly that a very much larger number of natives received hospital treatment than did Italians. When the U. S. Technical Project examined the hospital in Jimma, it was, however, discovered that, while a grandiose hospital had been under development for the Italians, no real hospital existed for the Ethiopians, apart from some temporary, insanitary buildings. These barracks carried a magnificent name and figured with a large number of beds for natives in the Italian reports, but the obvious fact was that essentially nothing had been done for the native population.

114 Much nosological work was prepared by the Italians in the different regions of

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114 Ethiopia. Eritrea and especially Italian Somaliland had been used by the School of Tropical Medicine in Bologna as a study ground, and to this was now added the much more varied and interesting field of Ethiopian nosography. The Italian studies, amounting to over 500, have been carefully analyzed by the U. S. Technical Project in Ethiopia. With few exceptions, especially in the field of malariology, the Italian work was careless, inexact, with a tendency to unwarranted generalizations.

While a number of excellent Italian physicians worked in East Africa, it would seem that, on the whole, publication was not encouraged unless it would further the Fascist cause. It would thus not be justified to judge Italian medical work here solely on the writings of the more politically minded party members. It does, however, remain a fact that, considering the very large group of medical men who worked in Ethiopia for over five years, we have precious little exact medical information about this country.

744 759 Today, the medical services of Ethiopia are being reorganized. The Government is attempting to obtain the necessary medical personnel, build hospitals and carry out public health programs. It is still too early to judge any achievements. The problems are many and the Ethiopian Government is handicapped through the complete lack of native Ethiopian physicians. Such physicians will not be available for at least another decade.

114 During and after World War II, military authorities had reason to take an interest in Ethiopian nosography and a number of articles were published in this field; prominent among these was Manson-Bahr's "The Prevalent Diseases of Italian East Africa" (1941). The U. S. Technical Project had opportunity to make a number of its own studies and much of the following information is based on this work.

164 If one may speak of social diseases in the sense of diseases of immediate impor-

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Syphilis with marked skin lesions in a woman.

tance, that is, having direct influence on the social development of a country, Ethiopia has at least six such social diseases: malaria, syphilis, tuberculosis, leprosy, typhus fever and relapsing fever.

Malaria

Malaria, or "fever," has been known to occur in Ethiopia as far back as we have any descriptions from this country. Bruce encountered this disease, as did Rochet d'Hericourt (1841), who described the diseases of Shoa, and also Aubert-Roche (1845-46). Ferret and Galinier wrote graphically

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164 in their *Voyage en Abyssinie:*

> "vers la fin de la saison des pluies, l'atmosphère humide, la terre détrempée et féconde en miasme pernicieux, font du pays un séjour funeste . . . " (Tigre and Lake Tsana).
>
> (Toward the end of the rainy season, the humid atmosphere and the soil, which is soaked and productive of a pernicious miasma, turn the country into a fatal region.)

Blanc (1869) states that Massawa is almost uninhabitable because of malaria, and that this is true, too, of the narrow, densely wooded and damp river valleys in the interior of the country. He gives the Takazze Valley a particularly bad reputation. It was known before the arrival of the Italians that most places below an elevation of 6,000 feet, especially river valleys, were likely to be malarious.

164 742 The Italians were primarily interested in settling a large group of small farmers in Ethiopia. It was, therefore, of paramount interest to them to find places where malaria would not interfere with agricultural development. A number of surveys were undertaken by first rate Italian malariologists beginning with the investigation by Lega, Raffaele and Canalis in 1936, which covered the Asmara-Addis Ababa road, the railway line from Addis Ababa to Diredawa, and parts of Italian Somaliland. In the following years intensive malarial surveys were made. Through the Malaria Institute "E. Marchiafava" in Rome, research centers were set up in Agordat and Diredawa. Much of the work was carried out under the leadership of Corradetti, who personally covered large parts of northern and northeastern Ethiopia. The British malariologist, Bagster Wilson, has recently published the results of his experiences in Ethiopia.

164 Summing up, it may be said that below 3,000 feet, near permanent collections of water, malaria is endemic. It becomes epidemic during the rainy seasons: the "big" rains from July to October, and the "small" rains in February and March. In the semi-

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164 arid area of Ogaden and in the Danakil Desert, malaria is found to be endemic near permanent water, and epidemic malaria has more than decimated the populations in certain regions during the rains. Between 3,000 feet and 4,500 feet most of the malaria is seasonal with two epidemic seasons, April to June and September to November. Spleen rates up to 90 percent are by no means rare in this zone. Between 4,500 and 6,000 feet endemic malaria occurs to a lesser degree, and above 6,000 feet malaria is extremely rare, although cases have been reported.

In the northern highland *Plasmodium vivax* is the most common form, while in the southern and eastern part of the country *Plasmodium falciparum* accounts for about two-thirds of the cases. *Plasmodium malariae* has been found at least once, but is of no importance. Raffaele and Lega claim to have found a special form of *P.* 164 *falciparum* which should constitute a subspecies var. *aethiopium*. *Anopheles gam-* 136 *biae*, *A. funestus* and *A. pharoensis* the most important vectors, but a number of other anophelines are under suspicion. *Anopheles gambiae* is, as elsewhere in Africa, by far the most serious vector. Due to its ability to breed under the most varied conditions, puddles, shallow ponds, pits, animal footprints, ditches, seepages, and borders of lakes and swamps, it is extremely difficult to eradicate.

164 Malaria annually takes a great many lives in Ethiopia, but even more important, it debilitates the population in the regions where it is prevalent, and many deaths from intercurrent diseases are primarily due to a chronic malaria.

The Italians undertook a quinine prophylaxis on a very large scale. At the time of their defeat, over 15 tons of quinine were found in the Italian medical stores in Ethiopia.

Venereal Diseases

There can be no doubt that syphilis is an old disease in Africa. There is a descrip-

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Syphilitic papulae of the face and the axilla.

tion of this disease from the dark continent by Leo Africanus as early as 1515. It is not known how early syphilis appeared in East Africa, but there is every reason to believe that it has been there for centuries. Due to the apparent mildness of clinical cases and the lack of neuro-syphilis, it has been suggested, among others, by Naegelsbach (1926), that there is a relation between this "exotic" syphilis and the "bejel" from Arabia described by Hudson.

[177] It is most likely that syphilis was brought to Ethiopia by the Portuguese in the middle of the 16th century. Most of the early travelers had noticed its presence. Thus, Rochet d'Hericourt (1841) states that: "Although there are no prostitutes in Shoa, the venereal diseases are common, but not in a very malignant form." Blanc (1869) gives an interesting description of syphilis in the northern highland. Ninety percent

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164 of the persons treated by him suffered from syphilis. It is peculiar that he saw little of what he calls "skin syphilis," which is now extremely common. Hirsch (1886) thinks that while the northern highland was infected early the disease most likely did not reach Shoa until the 19th century. He states that at the time of Rigler's travels (1852) it had apparently not yet reached the Galla country.

Today syphilis is common all over Ethiopia. It is estimated that from fifty to eighty percent of the population suffers from this disease. It would seem that the rate is lowest in Somalia and highest in Gojjam and in Addis Ababa. Little exact information is available. The U. S. Technical Project, however, was able to confirm the extremely high rates in a survey of three villages, where from 50 to 85 percent of the population was found to suffer from syphilis.

Tertiary lesions are rather rare, most likely due to the fact that life expectancy is so low, but the secondary symptoms of the skin and viscera are very common. The general manifestations are more or less pronounced. Rashes are seen of macular, papular acneiform, varicelloid, or impetiginous form. Primary syphilitic ulcers are often associated with other venereal ulcerations. Mixed infections are far more common than in Europe.

Of the other venereal diseases, gonorrhea is extremely common, as is also soft chancre. Lymphogranuloma inguinale is seen now and then, but is not important.

164 As elsewhere, the venereal problem in Ethiopia is intimately linked to the general 548 social life of the people. It would seem that sex morals, as understood by occidentals, have never been particularly strict among the Amharas. It is stated by local missionaries that already at the age of sixteen the young Amhara used to begin visiting prostitutes, and that it, therefore, was quite common to find, when he was ready for marriage, at about 18, that he had acquired both syphilis and gonorrhea. While it should be pointed out that the present gov-

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164 ernment under Emperor Haile Selassie is
548 acutely aware of the seriousness of this problem, and seeks to educate the people to understand its dangers, corrective efforts have been severely handicapped so far by lack of trained educators and physicians.

164 We are dealing with two forms of syphilis in Ethiopia. In the urban districts and along the main highways we have an "epidemic" form, a syphilis which is being spread at a great rate of speed up and down the lines of communication. In the more isolated parts of the country the disease is also present, but in what might be called an endemic form, the larger part of the population suffering from congenital syphilis, with some imported fresh cases.

One of the most surprising facts about this congenital syphilis is that it does not seem to show up in early childhood. Among 10,000 children examined by the Italians, no clinical case of syphilis was seen, although at least 60 percent of the children's parents were syphilitic.

During the Italian occupation the venereal situation grew still worse, notwithstanding an extensive medical service. This was due to the general war conditions in the country with the constant movement from one place to another. Castellani's fantastic statements on the efficiency of the Italian preventive system have been adequately discussed by Manson-Bahr (1941). The large Italian labor forces introduced for road building were an important factor in the spread of the disease. The considerable development of the road net has been a factor of extreme importance.

Tuberculosis

There has been considerable discussion of the age of tuberculosis in Ethiopia. The earlier writers, like Bruce (1790), and Courbon (1861), either do not mention the disease, or, like Rueppell (1840) and Kirk (1843), their descriptions are so vague that no definite conclusions can be drawn. Blanc (1869) states that at Magdala scrofula, consisting of severe inflammation of

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164 the lymphatic glands with fistulae, was very common. He makes a point of having seen only one case of pulmonary tuberculosis. Merab (1912), physician to Menelik, does not think ten persons died yearly of this disease in Addis Ababa, while two decades later, Borra (1930) was much impressed with the amount of tuberculosis in the capital.

Little definite information is available today about tuberculosis in Ethiopia. Tuberculin tests (Mantoux) showed in the last year of the Italian occupation 35 percent positives in Shoa, 30 percent in Harar, 28 percent in Amara, and 25 percent in Galla Sidama. Of urban regions Diredawa

An Ethiopian patient exhibiting a typical case of Pott's disease.

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164 was highest with 72 percent, followed by Addis Ababa with 52 percent. The actual number of persons tested is not known, but it was at least several thousand.

Unfortunately, there can be no doubt that pulmonary tuberculosis here, as elsewhere in Africa, is on the increase. The opening up of the country, the movement of the population during the war, and the arrival of many Europeans without proper health examination has furthered this increase, which will continue with the beginning of industrialization in the urban regions unless far-reaching measures are taken at a very early time.

The U. S. Technical Project had opportunity to observe numerous cases of open pulmonary tuberculosis, not only in the larger towns, but also in remote villages. So far there are no facilities for dealing with these sources of danger to the community. Left to itself, tuberculosis is likely to become the most important health problem in Ethiopia within the next decade.

Leprosy

Leprosy is an old disease in Ethiopia. It is mentioned by almost all the early writers. Rueppell (1840) saw it in Gondar; Rochet (1841) describes it as due to the climate; Aubert-Roche (1845-46) found it extremely common in Ethiopia; and Kirk (1843) treated 23 lepers in Ancober in 1842. Finding a number of lepers at Lake Tsana, Blanc (1869) revived the old "fish theory."

The exact number of lepers present in Ethiopia today is difficult to estimate, but is likely to run into several thousands. [743] There is a leprosy camp in Harar with about 150 lepers, and it is likely that there are about as many left in Harar town. Addis Ababa has about 300 lepers under treatment in a leprosarium, and another 200 living in a community on the outskirts of the city. No satisfactory control, however, is possible at the moment. Most of the leprosy seen is of the nodular and mixed form, but macular-anaesthetic cases are not rare. Leprosy does not endanger

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164 the country at the moment. It should, however, be kept in mind, that with the opening of communication lines and increased traffic and travel, leprosy must be controlled, otherwise it will increase.

Typhus Fever

Typhus fever is known to occur in at least three forms. Classical louse-borne typhus is endemic on the high plateau. Major Ecke of the American Typhus Commission visited Ethiopia in 1944 and found that, while the occurrence of murine typhus has not been scientifically proved, it is extremely likely that this form plays an important rôle. Recently a number of cases of tick typhus have been reported from southern Ethiopia.

164 The Central Laboratory in Addis Ababa has isolated four local strains of rickettsia.
742 One of these has been constantly orchitic for 52 passages through guinea-pigs, while the other three were non-orchitic.

164 Cases fall clinically in two main groups. One has a fulminant course with a very high mortality; the other is extremely mild. The high mortality among Italian laborers in the early days of the occupation (sometimes reaching 20 percent) was no doubt due to louse-borne typhus. Fatality in hospitals in Addis Ababa ranged from five to thirty-five percent. Typhus occurs in Ethiopia in the cold, wet months of July, August and September. Surveys have shown that lousiness is almost universal.

751 During the Italian occupation a large scale vaccination campaign with Weigl vaccine was undertaken. This vaccine has recently been replaced by American vaccine, and large scale vaccination has been carried out since 1945.

Relapsing Fever

164 In 1868, relapsing fever broke out in India and Hirsch (1886) states that it may have been introduced by Napier's soldiers returning from Ethiopia. The disease is no doubt old in Africa, where it occurs in both louse-borne and tick-borne forms.

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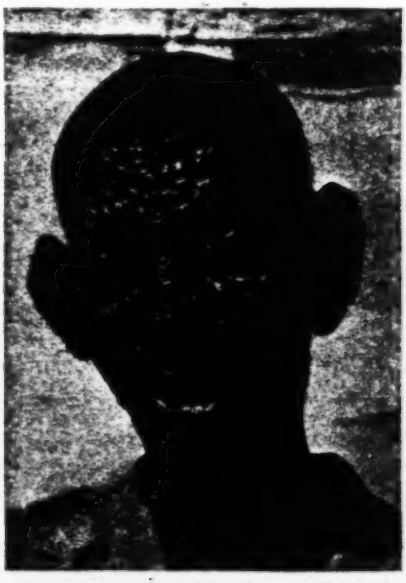

Advanced case of nodular leprosy. Total alopecia of face, no loss of hair on head.

It is likely that all relapsing fever in the highland is of the louse-borne variety. Naegelsbach (1934) points out that the Amhara seldom knew the word for tick unless he had traveled to the lowland. Considerable epidemic outbreaks of louse-borne relapsing fever have been described from northern Ethiopia around Adua, Axum, Macalle, Adigrat and Debra Tabor. I had the opportunity to observe a small epidemic a few miles outside Addis Ababa. About 75 to 100 deaths had occurred in a village before rumors of the disease reached the capital. The fatality from this disease among the untreated, badly nourished population is very high indeed, and even in hospitals in Addis Ababa it is found that the fatality is generally higher than that of typhus. The largest number of cases are admitted to the hospital in Addis Ababa from July to September.

Relapsing fever of the tick-borne variety is endemic in the Diredawa region. *Ornith-*

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164 *odorus moubata* and *O. savignyi* are both common here. Much scientific research is needed on the relapsing fevers of Africa, and Ethiopia would offer a particularly rich field.

Of special interest in the study of the nosography of any country is the presence or absence of the important communicable diseases: plague, cholera, yellow fever and small-pox.

Plague

From Ethiopia proper only a few doubtful cases have been reported. Most of the Italian writers state that they have never seen a case of plague here. Immediately after the entry of British troops into Addis Ababa there was a report of a case of plague, but it seems now that the diagnosis was not too certain. A survey was made immediately, however, and a total of 3,000 rats were examined in the capital. At the same time 16,000 fleas were identified. It was found that the necessary carrier and carrier hosts were present in abundance. One would most likely find infected rats, if a real search was made on the Kenya border. Thus, the fact that there is no plague at the moment in Ethiopia, should not serve responsible authorities as an excuse from guarding against the disease for which the meteorological conditions are optimal over wide areas.

Cholera

Cholera came early to Ethiopia. Hirsch (1886) writes (Vol. I, page 403):

> "The outbreak in 1837 was probably the continuation of a pestilential progress from Egypt through Tripoli and Tunis, the wider ramifications of which may be seen in the epidemics that prevailed at the same time in Abyssinia, on the East Coast of Africa from Somaliland to Zanzibar, and in the Sudan countries, Khartoum, Kordofan, Darfur and Waday."

Meyer-Ahrens (1855) mentions two epidemic periods, one in 1830-31 and the other in 1836. Hirsch continues (Vol. I, page 423):

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164 "The outbreak on the coast of Abyssinia on October, 1865, is probably connected with the epidemic in Nubia; according to information derived from the English missionaries, who were kept in captivity by King Theodore, the disease committed great ravages in the following year (1866) in the district of Tigre and still farther into the interior of Abyssinia; and it is this epidemic that appears to have been the point of departure, as we have seen for the extension of cholera to the country of the Gallas."

There seems to have been an outbreak along the River Setit in Eritrea in 1891, and it is stated that there was cholera in Ethiopia in 1892-93, but no details on this outbreak are available.

Since 1900, no occurrence of cholera in Ethiopia is mentioned, but the country is obviously exposed to it, especially through members of its Moslem population who make pilgrimages to Mecca.

Yellow Fever

The presence of persons with sera giving positive mouse-protection tests in the area

Leprosy: nodular form with mutilated hands.

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Elephantiasis with secondary fungus and bacterial infection.

around Massawa (Eritrea) was shown early in the war by Mahaffy and Sams. Too little work has so far been done in Ethiopia to express any definite opinion on the occurrence of yellow fever in this country. A series of sera taken in the Jimma region proved negative, but recently a case has been described from the Dagobur region (Ogaden), and a few positive sera have been found. For practical purposes Ethiopia is in the yellow fever area of Africa.

Smallpox

164 751 Smallpox is an old disease in Ethiopia. It is possible that an outbreak of smallpox in 370 A.D. in Arabia was connected with the Abyssinian invasion of this country. Hirsch (1886) states that one of the most intense foci of smallpox is found on African soil in the countries of the Nile basin, Egypt, Nubia, Kordofan and the Abyssinian Highlands. Rochet d'Hericourt (1841) describes the variolation practised in Shoa at the time of his visit:

> "They take pus from a sick person and make an incision on the leg of the person to receive the variolation. The virus is introduced into the incision, which is then covered with cotton."

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164 Aubert-Roche (1845-46) also describes smallpox as an important disease and Courbon (1861) states that few Abyssinians are seen without smallpox scars.

The Italians undertook large scale vaccination and smallpox began to disappear. In 1937, 200,000 vaccinations were given in and around Addis Ababa as a small epidemic had occurred among the people living near the aerodrome. (In 1944, I saw a small outbreak at Sire, near Lekemti.)

Smallpox vaccine is being prepared in Addis Ababa, but until an adequate health service can be established this disease will continue to be a menace both to the Ethiopians and their surroundings.

Helminthic Diseases

The classical disease of Ethiopia is infection by the tapeworm *Taenia saginata*. All the old travelers have detailed descriptions of the eating of raw meat (*brindo*) and the ensuing tape-worm infection. Courbon's (1861) statement is a typical example:

> "Men and women, all and sundry, in this country, have the entozoon; and they take some *kouzzo* regularly every two months to prevent the more serious derangements, which it might cause."

Detailed descriptions of the special Ethiopian anti-helminthic, the so-called *kousso*, have been given in every book on Ethiopia, up to the latest. The professional medical writers have shown the same picture of the omnipresent tapeworm. I had long been skeptical about the frequency of tapeworm. Very little meat, raw or pre- [262] pared, is eaten by the average Ethiopian, for the simple reason that he cannot afford it. The older travelers were describing special festivals in connection with arrival at distant places. At such occasions meat would be eaten. In a survey of three Ethiopian villages the U. S. Technical Project found tapeworm to be a comparatively rare disease, *Ascaris lumbricoides* being by far the most common helminthic parasite. Conditions are in most places favorable for the embryonation of the ova. The soil is heav-

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A characteristic case of elephantiasis vulvae.

ily polluted, and as no intermediary host is needed the infection is widespread. *Trichiuris trichiura* does not seem to be particularly common in Ethiopia. I found it in about 13 percent of stools in one of the villages examined. *Enterobius vermicularis* seems to be comparatively rare. *Trichinella spiralis* has not been reported from Ethiopia.

HOOKWORM DISEASE: So far little actual survey material is available. Naegelsbach (1934) states that hookworm infection is common in Gore. The disease is rare in the northern highland and seems also to be rare in Ogaden. The U. S. Technical Project found no hookworm in Ambo village at an elevation of 9,000 feet. In Shabe (elevation 6,000 feet), 26.6 percent of stools were found to contain hookworm. It is likely that the disease is most widespread in southwestern Ethiopia.

SCHISTOSOMIASIS: While this disease is quite common in Italian Somaliland, where *Schistosoma haematobium* has been found over a wide geographic range, it is extremely localized in Ethiopia. *Schistosoma haematobium* and *Schistosoma mansoni* infection were described in 1938 from Tigre and one case of *Schistosoma mansoni* infection was described in 1938 from Harar. The disease is rare in Ethiopia.

Fasciola hepatica is common in animals,

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164 but so far has never been found in human beings. The Echinococcus has been described by the Swedish physician, Dr. Hanner, in two cases from the hospital in Addis Ababa.

FILARIASIS: A considerable amount of filariasis has been described from Ethiopia and the illustration shows a typical clinical case. So far, nobody has been able to prove the presence of *Wuchereria bancrofti* although whole villages have been examined by day and by night. Much of the "elephantiasis" is no doubt surgical, but a large number of clinically typical cases of filariasis are found. *Loa loa* has not been described from Ethiopia. *Dracunculus medinensis* has only occurred where it was introduced from Arabia by traders and has not established itself in Ethiopia.

ONCHOCERCA VOLVULUS: In 1937-38, Giaquinto made a study of the insects of medical importance in Ethiopia. He re-
[136] ported the presence of *Simulium damnosum* in several localities in Galla Sidamo and suggested that onchocercosis might be present here. An expedition conducted by Giaquinto confirmed this. I studied this region in 1944 with Giaquinto and numerous cases of onchocerciasis were disclosed in a survey of the village of Shabe. Photophobia and diminished sight were common and the parasite was found in tumors that were removed. It is likely also that Gore, Lekemti, and Gardulla are endemic regions.

A case of Onchocerca volvulus tumor.

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Onchocerciasis which has led to ocular involvement.

Diseases of the Skin

Diseases due to fungi are extremely common. Ringworm has been constantly described by Italian workers and was found by the U. S. Technical Project to be very common in children. A typical case of Achorion schoenleini is shown on this page.

Maduramycosis has been described by a number of writers. While there is no doubt as to the presence of a foot infection showing nodules on the external surfaces connecting up with granulomatous lesions of the interior of the foot, etiological work is so far not satisfactory in this field, and it is doubtful whether the organisms giving rise to mycetoma and to actinomycosis should be classified in one or two genera.

Tropical Ulcer: This is one of the most important of all the diseases in Ethiopia. It is the most common pathological entity, and it is likely that over 50 percent of the population suffers from this disease. It is therefore surprising to find that next to no work has been done on the etiology of this condition as seen in East Africa. There is an almost general agreement that it is an infectious condition in which spirochetes and fusiform bacilli are often found, and now and again "environmental conditions" are mentioned. The U. S. Technical Proj-

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164 ect came to the conclusion that tropical ulcer in Ethiopia must be classified as a "social disease." Filth, overcrowding and malnutrition are important factors, but even more decisive has been the displacement of tens of thousands of young Ethiopians by the Italian authorities during the occupation. It has been found that cases treated in hospitals will heal quickly, but when released to look out for themselves the patients soon "relapse." Vigorous attempts are now being made to achieve a simultaneous solution of both the medical and social problem.

Two parasitic skin diseases are extremely common. Scabies is almost universal and may be taken as an indication of the poor general hygiene. Chiggers have spread little by little over the whole of Ethiopia. The Ethiopians claim that the parasite was introduced into Ethiopia from Kenya over Moyale, the frontier village. In Ethiopia the disease is called "moyale."

Gastro-intestinal Disturbances

Both amebic and bacillary dysentery are common in Ethiopia. It is, however, surprising that so few amebic abscesses are found in this country. The illustration on p. 722 represents the only fair-sized amebic abscess the author saw during a year's survey. *Endamoeba histolytica* is endemic in

Infection with Achorion schoenleini (*favus*).

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An Ethiopian suffering from amebiasis with liver abscess.

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large parts of Ethiopia, but many cases of so-called amebic dysentery are no doubt bacillary. Fundamental work is urgently needed in this field as gastro-intestinal disturbances are extremely common in Ethiopia. In most of the cases seen in Europeans no amebae were found. The *typhoid-paratyphoid* group of organisms seems to be of extremely little importance in Ethiopia. This is all the more peculiar as most water supplies are heavily polluted. Surveys have shown extremely low titres in Widal reactions for this group.

Dysentery due to *Giardia lamblia* has been described by Italian writers, but it would seem that only the simultaneous presence of diarrhoea and the parasite has been proved. The occurrence of "hill diarrhoea" was suggested by Singer in 1965. Izzo, in 1938, attempted to make a case for this sprue-like disease which he claims to have found in the "Ambas," the high, isolated plateaus.

Eye Diseases

Eye diseases are mentioned as important in all the older descriptions of Ethiopia. Conjunctivitis is no doubt one of the most common ailments in this country. Due to the lack of hygiene, especially in sandy regions, infected lesions of serious nature are not uncommon. Senile cataracts are common and many eye diseases are caused

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by syphilis. It is not possible to estimate the amount of blindness due to gonorrhoeal infection, but it must be considerable. Trachoma is no doubt common in Ethiopia. It would, however, seem that the clinical forms are milder than those seen in Tunisia, Egypt, or the Balkans. It responds surprisingly well to treatment, but as treatment is hardly available outside the capital, complications of trachoma are seen all over the country.

Rarer "Tropical" Diseases

Leishmaniasis: Kala-azar no doubt occurs in Ethiopia along the Sudan-Ethiopian border. During the war it was found necessary to evacuate Galabat, and move the population of the border town elsewhere due to the occurrence of kala-azar. This disease has recently been described from the region just north of Lake Rudolph. Oriental boil (caused by *Leishmania tropica*) has been described from a number of places in Ethiopia, among these: Tigre, Gore, Gimbi, Lekemti, Jimma, Dalle, Diredawa and Harar.

Framboesia

Yaws is not a common disease of Ethiopia, while it is extremely common in Italian Somaliland. It has been described from the extreme western part of the country and quite recently (Cupi, 1943) from Amara.

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Case of cutaneous leishmaniasis in South West Ethiopia.

No case has been described from Shoa or Harar. Italian reports state that there were 180 cases in Galla Sidama in 1937-38.

Trypanosomiasis

Although the appropriate glossinas are known to occur in the Omo and Didessa valleys, no cases of trypanosomiasis in human beings have been described. The disease in animals is a serious economic problem.

Non-Tropical Diseases

Most of the common non-tropical diseases occur in Ethiopia. In the highlands pneumonia is one of the most frequent causes of mortality. There is reason to believe that whooping cough is common, but little information is available. Varicella is quite common, while the reports on measles are conflicting. Naegelsbach (1934) declares that this disease is well recognized by the native population under the name *kufun*. I never saw a case or met anyone who had seen one. Scarlet fever does not seem to occur. Hardly any work has so far been done on brucellosis, but the U. S. Technical Project found indications that this disease most likely occurs among cattle in the Danakil region. No human case has been reported.

[p. 723A]

164 The epidemiology of diphtheria in Africa is still little known. Schick tests have shown high immunity among Ethiopian children, but the occurrence of cases of clinical diphtheria in the native population is unknown.

Every year rabies has claimed a large number of Ethiopians. Until 1927 no treatment was available nearer than Cairo. [744] Since then, treatment has been given in Addis Ababa. The number of rabid dogs in Ethiopia is very large, but little is known of the number of persons bitten outside the capital. It is estimated that approximately 100 persons receive treatment in Addis Ababa every month.

Dengue is common in the northern part of the Harar plateau. It was found quite commonly among Italians at Diredawa and I can remember several fellow travelers coming down with this disease after a night spent in that town. Some control has been attempted since 1943, but until a health service is organized, effective control will not be possible.

Disease terms in Amharic:

164 192 A number of diseases have clear terms in the Amharic language. Of the venereal diseases, syphilis is referred to as *kitigne* in its early form while later manifestations are called *worde*. The rheumatic pains, *kurtemaat*, so frequently complained of, are often syphilitic. Gonorrhoea is generally called *chapto* (actually to squeeze, or it squeezes me). The word for malaria is *wobah* (*r*). *Nidad* (i.e., it caught fire) is also used, but may be used for several types of fever. Relapsing fever is called *mitch* and is generally differentiated by the population from typhus fever which is called *tessibo*. Smallpox is called *fantata* and chicken-pox is recognized as a distinct disease called *kuffin*. Diarrhoea is called *tekmat*, which literally means "what makes to sit down." In asking a patient whether he has fever, the word *tekusat* is used. The patient with fever will generally have put a band dipped in cold water around his head.

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BIBLIOGRAPHY

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Aubert-Roche: Essai sur l'acclimatiment des Européens dans les pays chauds, Deuxième partie: Abyssinie. *Ann. d'hyg. publ.*, 1845, 1846, vol. 34, pp. 304-335; vol. 35, pp. 5-26.

Blanc, Henry: Medical History of Journey in Abyssinia, *Brit. Med. Jour.*, 1869, vol. 1, pp. 255, 277, 371, 512

Bruce of Kinnaird, J.: *Travels to Discover the Source of the Nile, in the Years 1768, 1770, 1771, 1772, and 1773* (5 volumes). Robinson, London, 1790

Castro, Lincoln de: *Nelle terra dei Negus*, Milano, 1915, pp. 345-377 (vol. I)

Chabaneix, J. A.: Notes médicales sur l'Abyssinie, *Ann. d'hyg. et méd. colon.* (Paris) 1901, vol. 4, pp. 60-77.

Courbon, Alfred: *Observations topographiques et médicales recueillés dans un voyage a l'isthmus de Suez sur le littoral de la mer rouge et en Abyssinie*, Paris, 1861 (Thesis No. 33.) 74 pages, 1 map.

Hirsch, August: *Handbook of Geographical and Historical Pathology*, London, 1883-86

Kirk, R.: Medical Report on the Kingdom of Shoa, *Trans. Med. and Phys. Soc.*, Bombay, 1843, pp. 3-31

Manson-Bahr, Philip: The Prevalent Diseases of Italian East Africa, *Lancet*, 1941, May 10, pp. 609-612

Merab, R. P.: *Médecine et médecins en Ethiopie*, Vigot Frères, Paris, 1912

Meyer-Ahrens: Die Krankheiten der Abessinier, *Viertel-jahrsschrift f.d. praktische Heilkunde*, Prague, 1855, vol. 48, pp. 71-110

Naegelsbach, E.: Die Syphilis in Westabessinien, *Arch. f. Schiffs-u. Tropen Hyg.*, 1926, vol. 30, pp. 121-131

Naegelsbach, E.: Aerztliche Erfahrungen im Hochland von Abessinien, *Arch. f. Schiffs- u. Tropenhyg.*, 1934, vol. 38, pp. 100-112; 147-155

Rein, G. K.: *Abessinien*, vol. III, pp. 276-294, Berlin, 1930

Rochet d'Héricourt: Les maladies les plus fréquentes dans le Choa. In: *Voyage sur la côte orientale de la mer rouge dans le pays d'Adel et le Royaume de Choa*. Chapter 12, pp. 307-309. Paris, Arthus Bertrand, 1841. See also "Second Voyage," Paris, 1846, for beautiful plate of *kosso* tree

Rüppel, Eduard: *Reise in Abyssinien*, 2 vol., Frankfurt am Main, 1846

Singer, Charles: Notes on Cases met with in Southwestern Abyssinia in March, 1904, *Jour. Trop. Med.*, 1905, vol. 8, pp. 17-19

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[pp. 724-728 are omitted]